UNIVERSITY OF HAWAII
LIBRARY

OCT 21 '64

PLANT AND SOIL

International Journal of Plant Nutrition, Plant Chemistry, Soil Microbiology and Soil-borne Plant Diseases.

Revue internationale de nutrition des plantes, de chimie végétale, de microbiologie du sol et des maladies des plantes en rapport avec le sol.

Internationale Zeitschrift für Pflanzenernährung, Pflanzenchemie, Bodenmikrobiologie und bodenbedingte Pflanzenkrankheiten.

Issued under the auspices of the

"Koninklijk Genootschap voor Landbouwwetenschap"

(*Royal Netherlands Society of Agricultural Science*)

Executive Editors; D. I. Arnon, Berkeley; J. Baeyens, Louvain; F. C. Gerretsen, Groningen; G. W. Harmsen, Groningen; E. G. Mulder, Wageningen; F. J. Richards, London; A. C. Schuffelen, Wageningen; F. Steenbjerg, Copenhagen.

Secretary: G. H. Arnold

Assistant Secretary: J. K. Smit

c/o Institute for Soil Fertility
Groningen, Netherlands

Consulting Editors; Wm. A. Albrecht, Columbia, Mo.; C. Arnaudi, Milan; E. Gäumann, Zurich; L. Gisiger, Liebefeld-Berne; F. G. Gregory, London; A. J. de Groot, Groningen; W. R. C. Handley, Oxford; J. L. Harley, Oxford; J. den Holder, Ghent; V. J. Koningsberger, Utrecht; J. Lavollay, Paris; L. Leyton, Oxford; W. J. Lütjeharms, Bloemfontein; H. Lundegårdh, Uppsala; E. Melin, Uppsala; M. Ødelien, Ås; E. J. Petersen, Copenhagen; C. S. Piper, Adelaide; D. Snow, Reading; H. G. Thornton, Harpenden, Herts.; S. Tovborg Jensen, Copenhagen; A. I. Virtanen, Helsinki; S. A. Waksman, New Brunswick; F. W. Went, Pasadena; L. K. Wiersum, Groningen.

The Editors are - if necessary - advised by experts from the Staff of the Institute for Soil Fertility, Groningen

Druk: Koninklijke Drukkerij Van de Garde N.V., Zaltbommel

Plant and Soil

INTERNATIONAL JOURNAL OF PLANT NUTRITION,
PLANT CHEMISTRY, SOIL MICROBIOLOGY AND
SOIL-BORNE PLANT DISEASES

VOLUME XX

THE HAGUE
MARTINUS NIJHOFF
1964

Copyright 1964 by Martinus Nijhoff, The Hague, Holland
All rights reserved, including the right to translate or to reproduce this journal or parts thereof in any form.

PRINTED IN THE NETHERLANDS

66-40712

SB13
P55
V.20

CONTENTS — TABLE DES MATIÈRES — INHALT

PAGE

ABDEL SALAM, M. A., SABET, S. A., and HASHISH, S., Patterns of fixation of P^{32}-labelled phosphate by some soil minerals 241

AGNIHOTRI, VIRENDRA P., Studies on Aspergilli. XIV. Effect of foliar spray of urea on the Aspergilli of the rhizosphere of *Triticum vulgare* L. 364

BATRA, P. P., and MAIER, R. H., Isolation and determination of the ferric iron chelate of ethylenediamine di(o-hydroxyphenylacetic acid) in plant tissues 105

BIRCH, H. F., Mineralisation of plant nitrogen following alternate wet and dry conditions 43

BIRCH, H. F., DOUGALL, H. W., and HODGSON, H. C., The build-up and decline of ammonia and acidity during the growth of a grass (*Setaria sphacelata*) 287

BROWN, MARGARET E., BURLINGHAM, SUSAN K., and JACKSON, R. M., Studies on *Azotobacter* species in soil. III. Effects of artificial inoculation on crop yields 194

CLEMENT, C. R., The growth of cereals under soil conditions characteristic of an unstable tilth 265

CORNFIELD, A. H., Effect of period of air-dry storage of soils on the subsequent accumulation of mineral nitrogen during incubation 260

CSEH, EDITH, and BÖSZÖRMÉNYI, Z., The absorption and metabolism of halides and halogenates by excised wheat roots 371

DRIEL, W. VAN, The effect of iron ethylenediaminetetraacetic acid on the growth and metabolism of tomato plants in water culture 85

FOX, ROBERT L., and KACAR, BURHAN, Phosphorus mobilization in a calcareous soil in relation to surface properties of roots and cation uptake 319

FOX, R. L., and LIPPS, R. C., A comparison of stable strontium and P^{32} as tracers for estimating alfalfa root activity . . . 337

FRANCKI, R. I. B., Studies in manurial values of seaweeds. II. Effect of *Pachymenia himantophora* on manganese release and physical properties of soils 65

GOSS, JAMES A., *Short communication.* An improved fume hood for perchloric acid digestions of biological materials 397

GRAHAM, P. H., and PARKER, C. A., Diagnostic features in the characterisation of the root-nodule bacteria of legumes . . 383

GREGERS-HANSEN, BIRTE, Decomposition of diethylstilboestrol in soil 50

GREGERS-HANSEN, BIRTE, The uptake by plants of diethylstilboestrol and of its glucuronide 215

HALLSWORTH, E. G., GREENWOOD, E. A. N., and YATES, M. G., Studies on the nutrition of forage legumes. III. The effect of copper on nodulation of *Trifolium subterraneum* L. and *Trifolium repens* 17

HUMPHREYS, FR., and TRUMAN, R., *Short communication.* Aluminium and the phosphorus requirements of *Pinus radiata* 131

INGESTAD, TORSTEN, and NILSSON, HARALD, The effects of soil fumigation, sucrose application, and inoculation of sugar fungi on the growth of forest-tree seedlings 74

JONES, DAVID, and GRIFFITHS, ELLIS, The use of thin soil sections for the study of soil micro-organisms 232

KELLER, THEODOR, and KOCH, WERNER, The effect of iron chelate fertilization of poplar upon CO_2-uptake, leaf size, and content of leaf pigments and iron 116

KHAN, D. H., and ROY, A. C., Growth, P-uptake, and fibre cell dimensions of jute plant as affected by silicate treatment 331

KOUYEAS, V., An approach to the study of moisture relations of soil fungi 351

LARSEN, S., and GUNARY, D., The determination of labile soil phosphate as influenced by the time of application of labelled phosphate 135

LETEY, J., STOLZY, L. H., LUNT, O. R., and YOUNGNER, V. B., Growth and nutrient uptake of Newport bluegrass as affected by soil oxygen 143

MCGREGOR, A. J., and WILSON, G. C. S., The effect of applications of manganese sulphate to a neutral soil upon the yield of tubers and the incidence of common scab in potatoes 59

MOSS, P., Some aspects of the cation status of soil moisture. Part V: The effect of soil moisture tension on growth and cation uptake by plants 271

NOWAK, WILLY, Vergleichsstudien zwischen dem Mikroorganismengehalt des Bodens und seiner Saccharaseaktivität 302

PARKINSON, D., and CLARKE, J. H., Studies on fungi in the root region. III. Root surface fungi of three species of *Allium* 166

SCHREVEN, D. A. VAN, A comparison between the effect of fresh and dried organic materials added to soil on carbon and nitrogen mineralization 149

SPERBER, JOAN I., and SYKES, B. J., *Short communication.* A perfusion apparatus with variable aeration 127

TAYLOR, G. S., and PARKINSON, D., Studies on fungi in the root region. II. The effect of certain environmental conditions on the development of root surface mycofloras of dwarf bean seedlings 34

VLAMIS, JAMES, and WILLIAMS, E. D., Iron and manganese relations in rice and barley 221

FILED IN STACKS

WEIR, J. B., The effect of inositol on the growth and nodulation of diploid and tetraploid white clover grown in pot culture 175

WESTON, RUTH L., Nitrogen nutrition in *Atriplex hastata* L. . 251

WHITE, R. E., Studies on the phosphate potentials of soils. II. Microbial effects 184

WHITE, R. E., and BECKETT, P. H. T., Studies on the phosphate potentials of soils. Part I. The measurement of phosphate potential 1